Thermo-Electric Battery Chargers

Converting Pipeline Energy to Battery Power

Continuous Low Cost Rerliable Power

Parker's TEC thermo-electric battery chargers deliver power to your data, communication and automation applications regardless of available sunlight or inclement weather.

TEC-8 supplies 12 or 24 volt batteries with up to 6.3 watts of continuous power, regardless of available sunlight that could limit solar panel applications.

TEC's small, robust, self-contained package makes installation quick and easy and virtually eliminates theft and vandalism.

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Product Features:

- 6.3 watts of continuous power from natural gas or propane
- More reliable than solar panels
- Less expensive than electrical hook-up or solar panel systems
- For flow computers, volume correctors, transmitters or communication systems
- CSA approved for Class I, Div 2

ENGINEERING YOUR SUCCESS.

TEC Overview

TEC-8 Battery Chargers

Wind, sleet, snow, rain, and dark of night – you can depend on TEC to deliver power to your data, communication, and automation applications. All you need is a little natural gas or propane.

TEC-8 supplies 12 or 24 volt batteries with up to 6.3 watts of *continuous power*, regardless of available sunlight that could limit solar panel applications

TEC continuously charges lead acid batteries to always meet your power requirement regardless of available sunlight or inclement weather. TEC's small, robust, self-contained package makes installation quick and easy and virtually eliminates theft and vandalism. TEC extends its companion battery life by continually monitoring state-of-charge and temperature to optimize its charge and minimize deep battery cycles.

Continuous operation returns low-cost, improved performance to equivalent solar panel/battery systems

TEC-8 generally produces up to 6.3 watts of continuous power, depending on load, weather conditions and altitude. That output is roughly equivalent to a 40 to 150-watt solar panel system, depending on available sunlight. For example, a TEC-8 would be equivalent to a 40-watt solar panel stationed to receive 4 sun-hours per day or a 100-watt solar panel stationed to receive 1.5 sun-hours per day.

No large safety factor and no uncertainty

Automation and communication systems at critical and remote locations demand sustained power and no down-time so costly safety factors must often be considered to ensure reliability. Solar panel systems generally require significant safety factors, including larger batteries and battery banks, to accommodate worst case scenarios and days with limited sunlight. Even then you may not be safe.

TEC eliminates the large safety factor considerations and delivers power regardless of weather conditions or sunlight. TEC continuously charges the battery while your application draws power and then goes into "sleep mode" when the battery is once again fully charged. TEC's controlled, continuous feed eliminates deep battery cycles that shorten battery life. With TEC, simply select the battery required to handle application power surges, hit the fast "one button" startup switch, and let it run. No worries.

How does TEC work?

TEC uses the same safe, reliable catalyst technology that has been heating equipment in the natural gas industry for over 30 years. The package is Class 1, Division 2 approved and could be installed in almost any location where natural gas and propane are available. The units consume a small amount of fuel in a recently improved flameless oxidizing catalyst. (TEC-8 uses 3.0 CFH gas (0.08 M^3/Hour) or 1.0 CFH propane (0.03 M^3/Hour).)

The catalyst heats one side of an array of peltier thermoelectric modules while the other side is cooled by natural convection through aluminum fins to the environment. The temperature difference developed across the modules generates safe, electrical power.

TEC's self-contained starting system for the catalytic heater makes starting as simple as flipping a switch to turn the system ON and pressing a button to open the gas safety valve. The generated power is conditioned by a high efficiency switching power supply to provide the ideal temperature compensated battery charging current and voltage to the battery.

Internal diagnostics detect possible system problems, while alarm codes and charger state are saved in non-volatile memory to assist in trouble shooting. You can remotely monitor the system status using the open collector alarm output.

TEC-8 can easily power transmitters, flow computers, as well as larger applications such as communications and automation packaged. Multiple TEC units can be run in parallel to accommodate larger power requirements.

TEC Ordering Information

A Complete System includes the charger in a 304 SS enclosure, mounting hardware, supply shut-off valve with strainer, Battery Interface Module and a 20' Battery Interface Harness.

Thermo-Electric Battery Charger Systems	
Part Number Base	**Available Options**
TEC-XX	**–XXXXXXXX**

Code	Description
TEC-8	6.3 watts of continuous power
*TEC-8C	6.3 watts of continuous power

*Canada only – Max 15 PSI Inlet Pressure

Code	Description
D	External Diagnostic Interface (allows connection of diagnostic cable without removing front cover)
F	50' (15.24 meters) Battery Interface Harness (replaces std 20')
P1	CS 2" (5.08 cm) U-bolts & Nuts for Mounting
P2	SS 2" (5.08 cm) U-bolts & Nuts for Mounting
R	Propane Fuel Orifice
S	Wire Screen Heat Shield (prevents contact with top of unit)
T	Tamper Resistant Hardware
U	Strainer Only, Less Shut-Off Valve
V	24 Volt System (12V Standard)

TEC-8

TEC Specifications

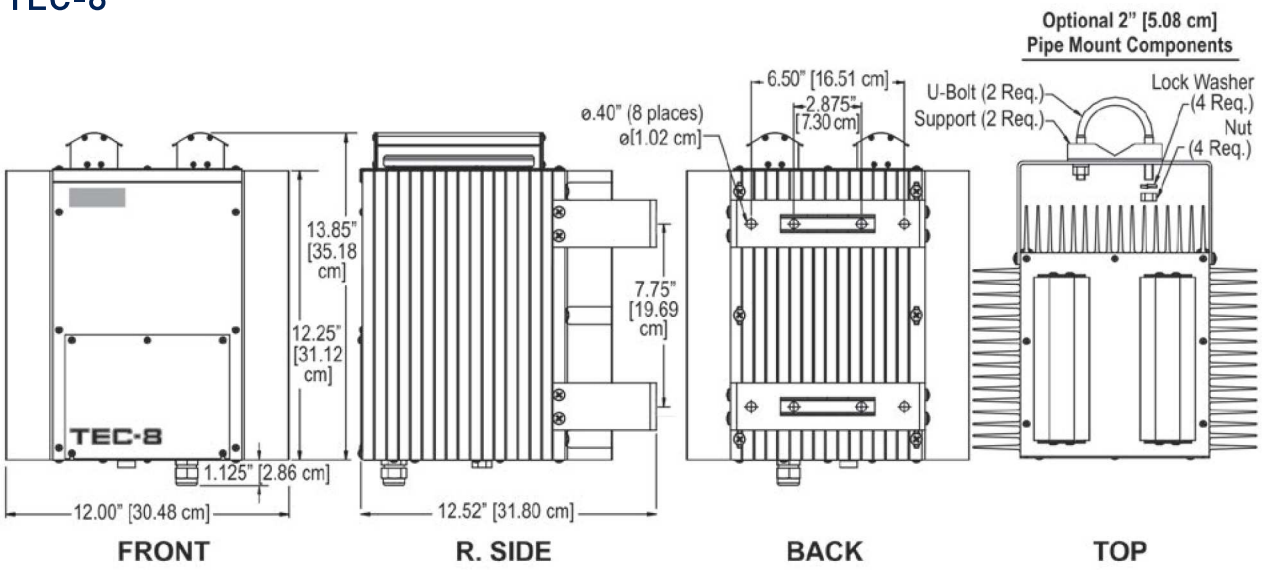
Charger Output	Temperature compensated charge curve for 12 volt gel-cell standard; optional 24 volt curve and constant voltage available
Output Power	Up to 6.3 watts continuous at 68°F ambient (20°C)
Remote Battery Temperature Sensor	Silicone diode with 12' of cable
Alarm	LED Monitor; NPN open collector, 30V max, 200mA max
Transient Protection	Bi-directional TVS, 1500 watt peak pulse power dissipation; 1 amp PTC over current protection
Electrical Connections	Liquid tight wire fitting; can be removed to allow for 1/2" conduit fitting
Wire Connections	Screw cage clamp; 14 AWG max
Fuel Connection	1/4" FNPT, 0.5 to 250 PSI (0.34 to 17.22 bar)
Fuel Consumption	Natural Gas: 72 cubic feet per day (2.04 M^3/Day) Propane: 0.66 gallons per day (2.50 liters/day; 3 pound/day)
Operating Temperature Range	-40°C to +50°C (-40°F to +120°F)
Enclosure	NEMA 3R; Wall mount or optional 2" (5.08 cm) pipe mount 304 SS with anodized aluminum cooling fins
Weight	50 pounds (22.67 kg)
Gas BTU Range	900 - 1100 BTU/Cu. Ft. Natural Gas (31,783-38,845 BTU/M^3) 2400 - 2600 BTU/Cu. Ft. Propane (84,755-91,817 BTU/M^3) (Consult factory for gas supply outside this range)

Product Warranty

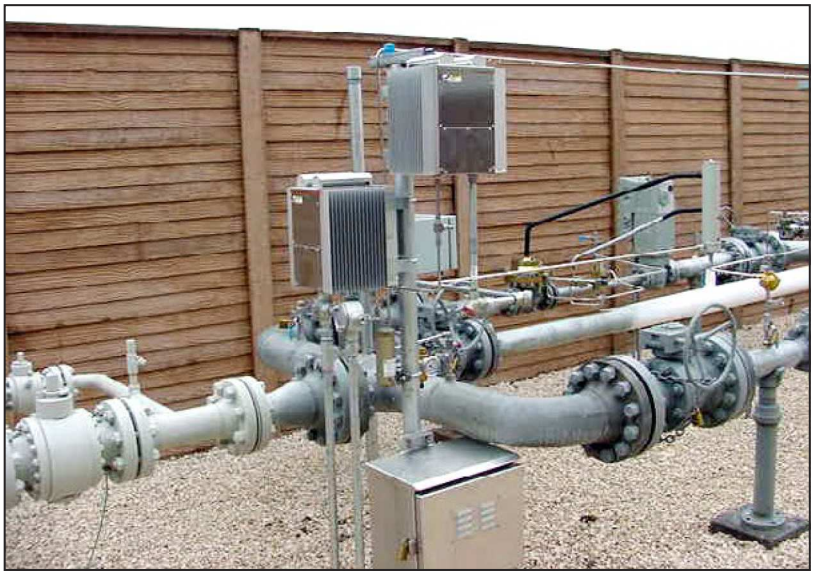
Parker warrants its products to be free from defects in material and/or workmanship for a period of one (1) year from date of shipment. This guarantee is valid only if such products have been used in normal applications consistent with our recommendations. Our liability is limited to repair or replacement and no responsibility is assumed for consequential damage or expense. Any controversy arising out of the sale of Parker products shall be determined in accordance with the laws of the State of Texas, United States of America (USA). Parker reserves the right to change materials, specifications or designs without notice. Parker will not be obligated to install or furnish such changes on products previously sold.

TEC Dimensions

TEC-8



TEC Field Installation



TEC Accessories

Cartridge Filter Canister

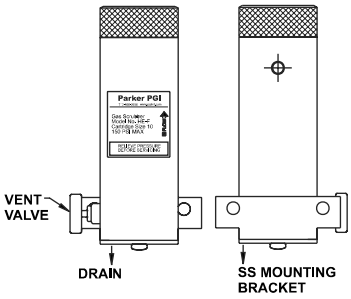
(For particulate H_2O and H_2S filtration – includes scrubber element and SS Mounting Bracket.)

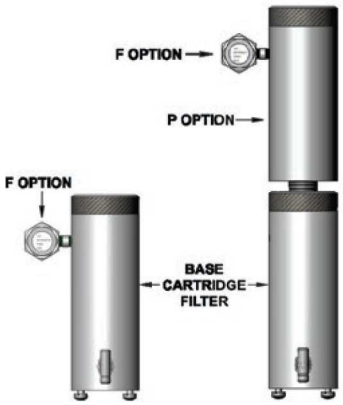
Part Number Base	Available Options
CFU	–XXXXX

Code
CFU
*CFU-C

*Canada only

Code	Description
F	H_2S/H_2O Contamination Indicator Assembly
P	Piggy Back Canister
P1	CS 2" (5.08 cm) U-bolts & Nuts
P2	SS 2" (5.08 cm) U-bolts & Nuts
V1	1/4" M/F CS PTFE Packed Hard Seat Inlet Valve
V2	1/4" M/F 316 SS PTFE Packed Hard Seat Inlet Valve





Specifications

Construction	Hard Anodized Aluminum
Mounting	SS Bracket less U-bolts Standard Option P1 or P2 for 2" (5.08 cm) Pipe Mount
Connections	1/4" NPT Inlet and 1/8" NPT Outlet Ports
Drain	Valve Operated (1/8" NPT Port)
Max Operating Pressure	CFU: 1440 PSI (99.21 bar) CFU-C: 15 PSI (1.03 bar) (Canada only)

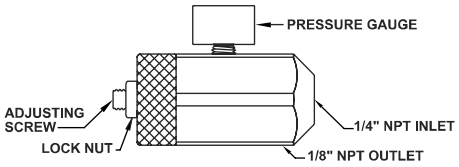
High Pressure Regulator

(Required if supply pressure > 200 PSI (13.78 bar). Not for use in Canada.)

Part Number
HPR

Specifications

Max Inlet Pressure	1440 PSI (99.21 bar)
Output Pressure Range	20 – 100 PSI (1.378 to 6.89 bar)
Operating Temp Range	-40° to +200°F (-40° to +93.33°C)



Supply Shut-Off Valve with Strainer

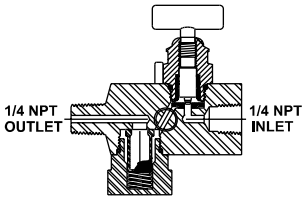
(Easily serviceable fuel supply shut-off with 15 micron particle filter.)

Part Number
V-960EDT
*V-964EDT

*Canada only

Specifications

Max Operating Pressure	V-960EDT: 1440 PSI (99.21 bar) V-964EDT: 15 PSI (1.03 bar)
Operating Temp Range	-40° to +200°F (-40° to +93.33°C)
Strainer	15 micron

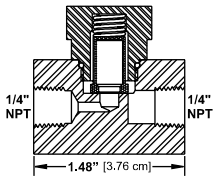


Filter Screen

Part Number	Description
V-908E	Aluminum
V908S	Stainless Steel

Specifications

Max Operating Pressure	1440 PSI (99.21 bar)
Operating Temp Range	-40° to +200°F (-40° to +93.33°C)
Strainer	15 micron



Wire Screen Heat Shield

Part Number	Description
SK-TE-C85-021	TEC-8 shield

Specifications

Prevents contact with top of TEC unit
Factory installed “S” Option

Diagnostics Cable Assembly with Software

Part Number	Description
SK-TE-C60-023	Diagnostics cable (TEC to USB), includes 1 piece of SK-TE-C60-021 and Windows® software.

External Diagnostic Interface

Part Number	Description
SK-TE-C60-021	User installed “D” Option. (Allows connection of diagnostics cable without removing front cover.)

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Safety Guide – See www.parker.com/safety.

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Bulletin PGI-TEC 01/2015-DDP

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